DSC-H1

Ver. 1.2 2007.07
Revision History

SECTION 6
ADJUSTMENTS

Auto-ADJ

Link

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  - Adjusting items when replacing main parts and boards
- SERVICE MODE
  - SERVICE MODE
- CAMERA SECTION ADJUSTMENTS
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  - ERROR
  - INITIALIZATION OF DATA

• Use this Service Manual together with the Automatic Adjustment Program (DSC-H1 Auto-Adj Ver_1.2r02.exe) and the AWB Adjustment Program (H1AwbAdjustment.exe).

SONY

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SECTION 6
ADJUSTMENTS

Before starting adjustment

Precaution on Replacing the SY-127 board

- The Repair Board has already been adjusted. Re-initialization or EVR data copy from the set before repair is not required.
- Perform "VIDEO OUT Default Data Check" mentioned below, and also the adjustment items necessary after SY Board replacement.

VIDEO OUT Default Data Check

When you replace to the repairing board, the written data of repairing board also might be changed to original setteing because of broadcast system (NTSC/PAL).
When the data has changed because of board replaceing etc, check the default data of VIDEO OUT if destination code is right. If not, rewrite to the right value.

VIDEO OUT Default Data

Page	Address	Data	
		NTSC	PAL
4F	8D	00	01
4F	A2	00	01

Writing Method:

1) Select page: 00, address: 01 and set data: 01.
2) Select page: 4F, address: 8D, and set data: 00 (NTSC) or data: 01 (PAL).
3) Select page: 4F, address: A2, and set data: 00 (NTSC) or data: 01 (PAL).
4) Select page: 40, address: 38, and set data: 00.
5) Click Save on the SEUS screen.
6) Wait for more than 3 sec.
7) Select page: 80, address: 30, and check that the data is "00".
8) Select page: 00, address: 01, and set data: 00.

Method for Copying or Erasing the Data in Internal Memory

The data can be copied/erased by the operations on the Setup screen. (When erasing the data, execute formatting the internal memory.)

Note 1: When replacing the SY-127 board, erase the data in internal memory of the board before replacement.
Note 2: When replacing the SY-127 board or the IC381 on the SY-127 board, execute formatting and initialize the internal memory after replacement.

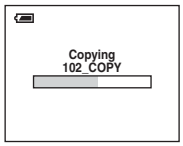
Method for copying the data in internal memory

Copy

Copies all images in the internal memory to a "Memory Stick".

	OK	See the following procedure.
✓	Cancel	Cancels the copying.

① Insert a "Memory Stick" having 32 MB or larger capacity.
② Select [OK] with ▲ on the control button, then press ●.
The message "All data in internal memory will be copied Ready?" appears.
③ Select [OK] with ▲, then press ●.
Copying starts.



- Use fully charged Nickel-Metal Hydride batteries or the AC Adaptor (not supplied). If you attempt to copy image files using batteries with little remaining charge, the batteries may run out, causing copying to fail or possibly corrupting the data.
- You cannot copy individual images.
- The original images in the internal memory are retained even after copying. To delete the contents of the internal memory, remove the "Memory Stick" after copying, then execute the [Format] command in Internal Memory Tool.
- You cannot select a folder copied on a "Memory Stick".
- The setting of (Print order) marks is not copied even when you copy data.

Method for formatting the internal memory

This item does not appear when a "Memory Stick" is inserted in the camera.
The default settings are marked with ✓.

Format

Formats the internal memory.
Note that formatting irrevocably erases all data in the internal memory, including even protected images.

	OK	See the following procedure.
✓	Cancel	Cancels the formatting.

① Select [OK] with ▲ on the control button, then press ●.
The message "All data in internal memory will be erased Ready?" appears.
② Select [OK] with ▲, then press ●.
The format is complete.

1-1. Adjusting items when replacing main parts and boards

When replacing main parts and boards, adjust the items indicated by ● in the following table.

Note 1: The automatic Adjustment Program does not support the "Initialization of data" and "Wide Limit Adjustment". Perform them manually.

Note 2: Use the AWB Adjustment Program (H1AwbAdjustment.exe).

Note 3: When replacing the SY-127 board, erase the data in internal memory of the board before replacement.

Note 4: When replacing the SY-127 board or the IC381 on the SY-127 board, execute formatting and initialize the internal memory after replacement.

Adjusting item	Adjustment	Replaced parts																						
		Block replacement						Mounted parts replacement									Board replacement							
		Lens block	Flash unit	LCD block	LCD901 LCD unit	LED901 Back light unit	LCD902 LCD unit	AF-102 board D001 (AF illumination LED)	CD-576 board IC101 (CCD imager)	CH-169 board IC101 (Timing gen., CCD signal process)	EV-016 board D001 (EVF back light)	SY-127 board IC301 (Camera DSP)	SY-127 board IC381 (32M AND flash) (Note 4)	SY-127 board IC601 (LCD/EVF driver)	SY-127 board IC802 (Video amp.)	SW-447 board SE401, 402 (PITCH, YAW sensor)	AF-102 board (COMPLETE)	CD-576 board (COMPLETE)	CH-169 board (COMPLETE)	EV-016 board (COMPLETE)	SY-127 board (COMPLETE) (Note 3, 4)	SW-447 board (COMPLETE)
(Note 1)	Initialization of data																							
VIDEO adjustment	Video output level adj.											●			●							●		
(Note 1)	Wide limit adj.	●																				●		
CAMERA adjustment 1	Flange back adj.	●							●									●				●		
CAMERA adjustment 2	Flange back check	●							●									●				●		
CAMERA adjustment 3	F No. compensation	●							●	●								●	●			●		
	Measure gain adj.																							
	Mechanical shutter adj.																							
	Light value adj.																							
(Note 2)	AWB 3200K-5800K standard data input	●							●	●								●	●			●		
CAMERA adjustment 4	Color reproduction adj. & check	●							●	●								●	●			●		
	CCD linearity check																							
	CCD white defect compensation check																							
	CCD black defect compensation check																							
CAMERA adjustment 5	Strobe adj.	●	●					●	●	●							●	●	●			●		
	Auto focus illumination check																							
CAMERA adjustment 6	HALL sensor gain adj.	●														●						●	●	
	Angular velocity sensor sensitivity adj.																							
LCD adjustment	V-COM adj.			●	●							●		●								●		
	White Balance adj.																							
EVF adjustment	White Balance adj.						●				●	●		●						●		●		

Table 6-1-1

6-1. CAMERA SECTION ADJUSTMENTS

1-1. PREPARATIONS BEFORE ADJUSTMENTS

1-1-1. List of Service Tools

• Oscilloscope • Color monitor

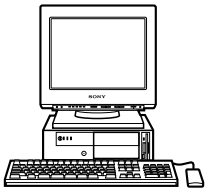
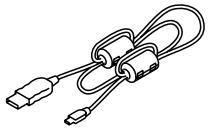
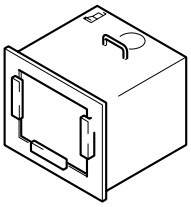
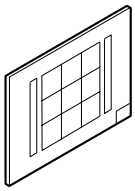
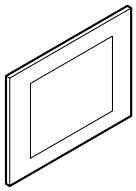
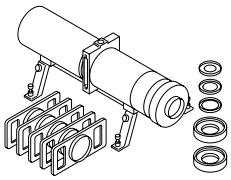
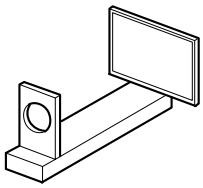
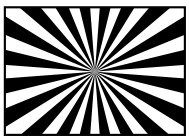
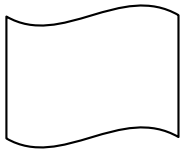
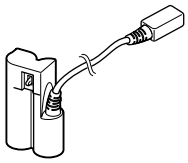
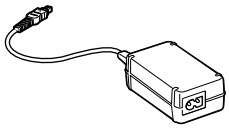
J-1  Personal computer (Note 1)	J-2 HASP key and application for adjustment (SEUS) Contact our service headquater of each area how to get the application for adjustment (SEUS) and HASP key.	J-3  USB cable 1-827-038-11
J-4  Pattern box PTB-450 J-6082-200-A or Small pattern box PTB-1450 J-6082-557-A	J-5  9 colors chart (Note 2) For PTB-1450: J-6082-562-A	J-6  Clear chart For PTB-450: J-6080-621-A For PTB-1450: J-6082-560-A
J-7  Minipattern box J-6082-353-B	J-8  Flange back adjustment jig J-6082-563-A	J-9  Siemens star chart J-6080-875-A
J-10  Back ground paper J-2501-130-A	J-11  Connection code DK-2AA 1-830-351-11	J-12  AC power adaptor AC-LS5 1-479-284-12

Fig. 6-1-1

Note1: Personal computer
OS: Windows98/98SE/Me/2000/XP Home/XP Pro
RAM: 256MB or more recommended
USB: 2.0 recommended (also compatible with 1.1)
Two connectors are required.

Note2: In using the 9 colors chart on the pattern box PTB-450, adjust the chart size through the procedure shown below so that it matches to the pattern box PTB-450.

1) Prepare a woody board A of the thickness 5 mm, and paint it mat-black.
2) Fit the 9 colors chart in the woody board A, and secure the chart with a black tape, etc. to shield the light.

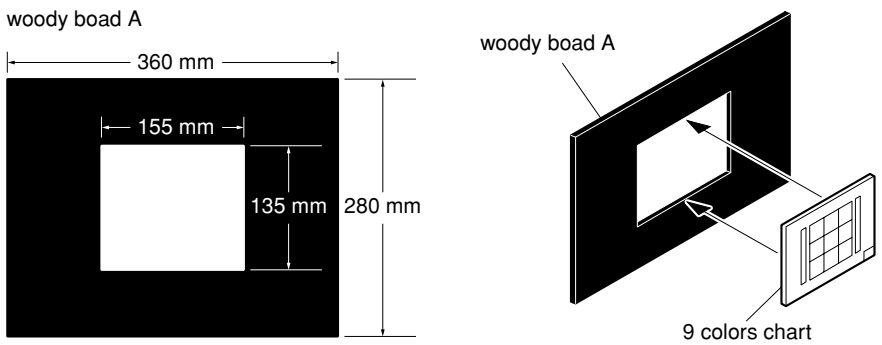


Fig. 6-1-2

1-1-2. Preparations

1) Connect the equipment for adjustments according to Fig. 6-1-4.
2) Start up the application for adjustment (SEUS).

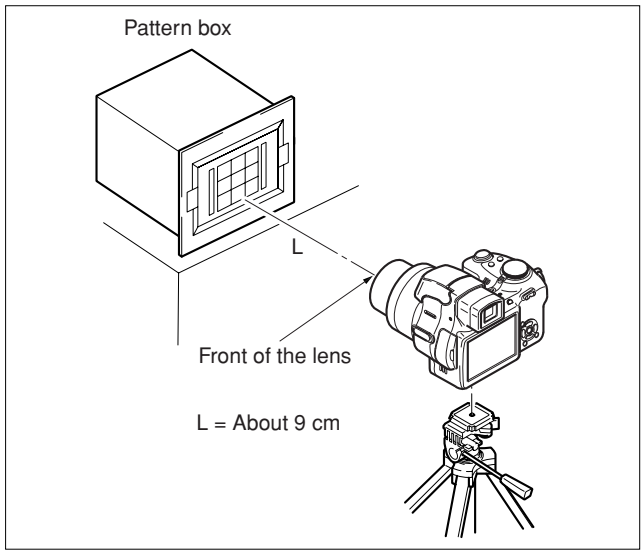


Fig. 6-1-3

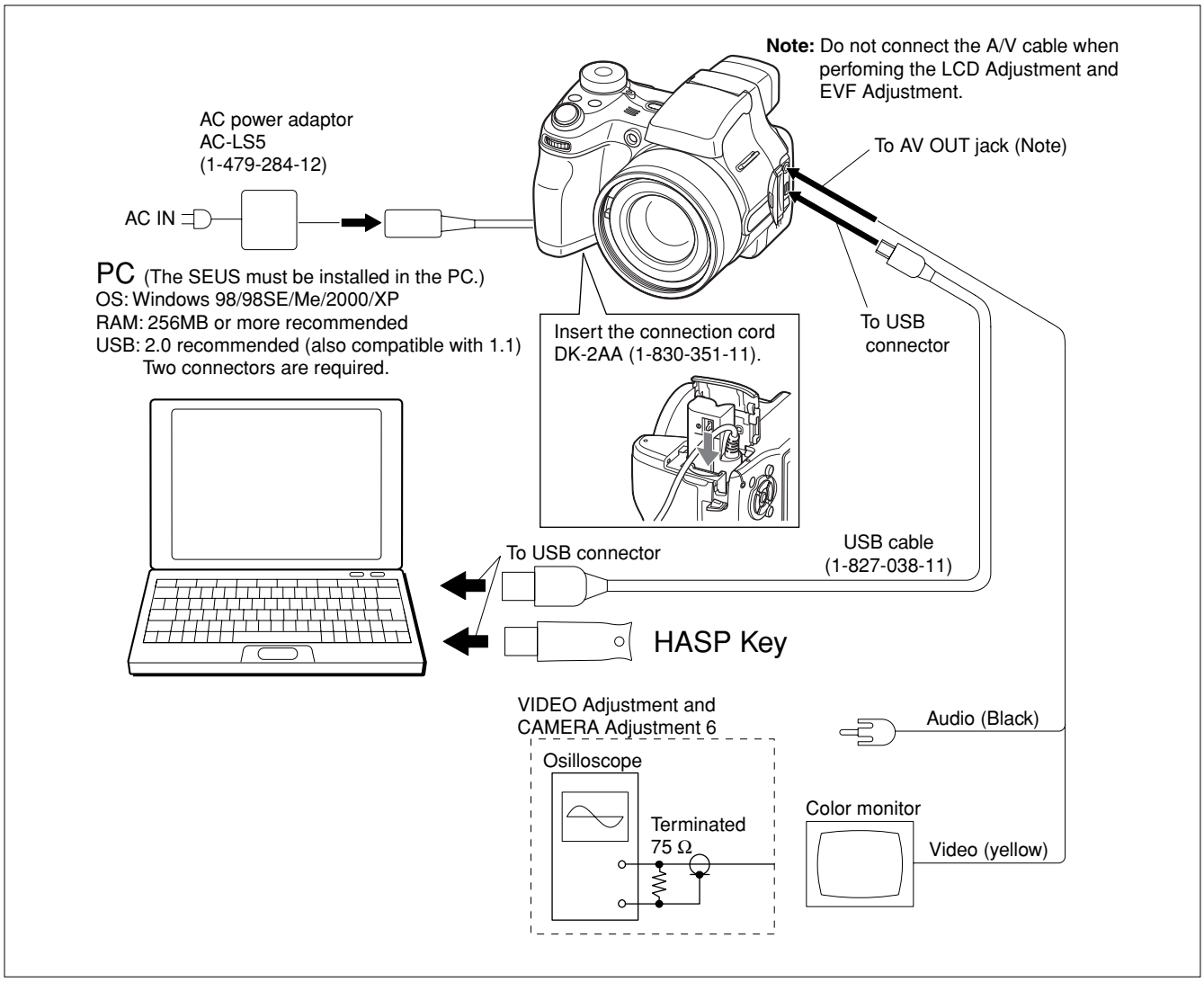


Fig. 6-1-4

1-1-3. Precautions

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments.

1. Mode Dial ..... CAMERA (Auto)
2. ZOOM button ..... WIDE end
3. Video Out (SET UP setting) ..... NTSC
4. Digital Zoom (SET UP setting) ..... Off

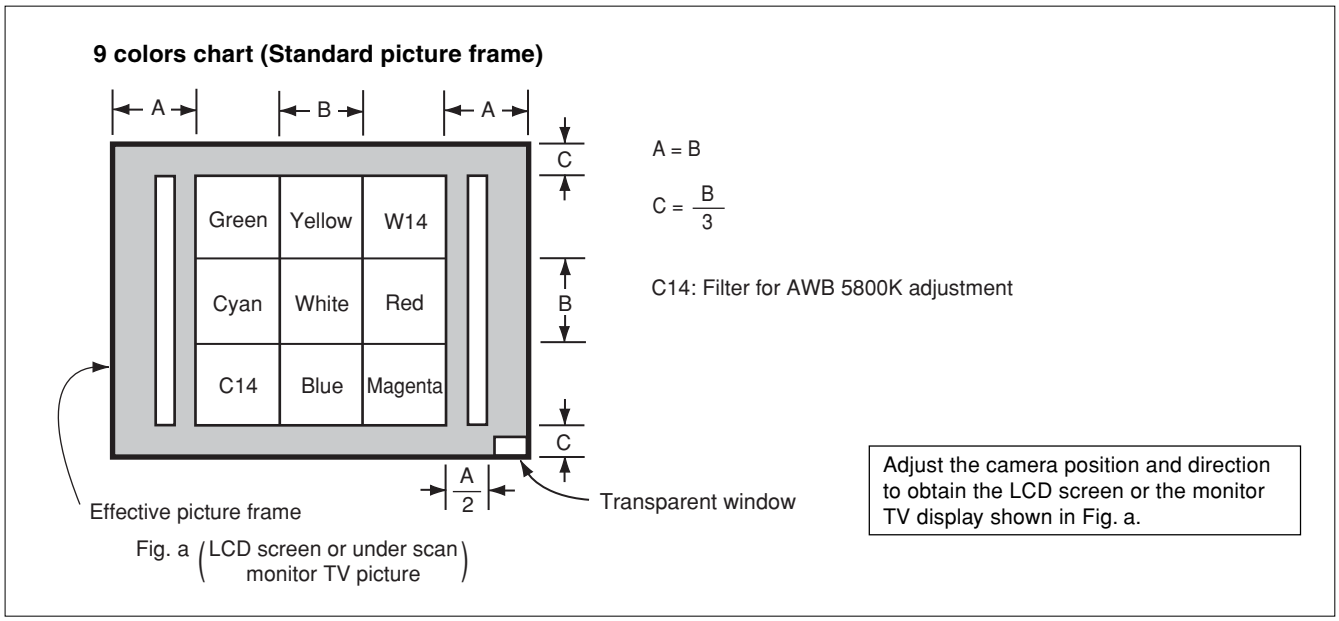


Fig. 6-1-5

2. Subjects

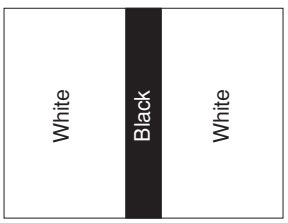
1) 9 colors chart (Standard picture frame).
   When performing adjustments using the 9 colors chart, adjust the picture frame as shown in Fig. 6-1-5. (Standard picture frame)
2) Clear chart (Standard picture frame)
   Remove the 9 colors chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time)
3) Chart for CAMERA Adjustment 6
   Combining A4-sized white and black sheets, create two types of charts (Pattern A and Pattern B) as shown in Fig. 6-1-6 and Fig. 6-1-7.

Pattern A

A4 size (297 mm × 210 mm)

Fig. 6-1-6

Pattern B



A4 size (297 mm × 210 mm)

Fig. 6-1-7

3. Preparing the Flash Adjustment Box

A dark room is required to provide an accurate flash adjustment. If it is not available, prepare the flash adjustment box as given below;

1) Provide woody board A, B and C of 15 mm thickness.

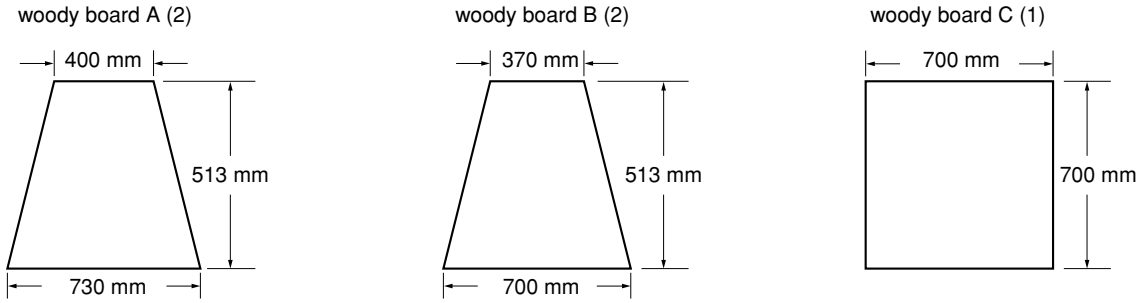


Fig. 6-1-8

2) Apply black mat paint to one side of woody board A and B.
3) Attach background paper (J-2501-130-A) to woody board C.
4) Assemble so that the black sides and the background paper side of woody board A, B and C are internal. (Fig. 6-1-9)

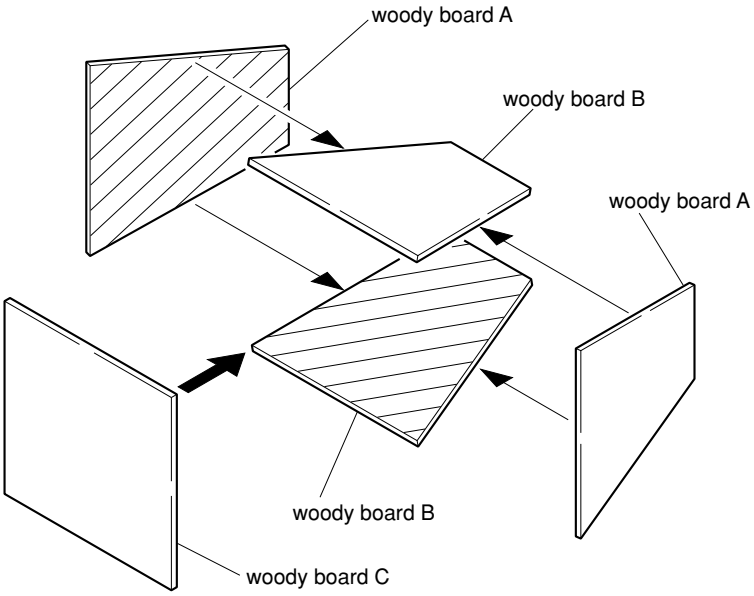


Fig. 6-1-9

1-1-4. Using Method of SEUS

The application for adjustment (SEUS) is used to change the coefficient for calculating the signal processing or EVR data. The SEUS performs two-way communication between PC and set through the USB terminal. The two-way communication result data can be written to the nonvolatile memory.

1. Connection

1) Connect the HASP key to the USB terminal of the PC.
2) Connect the PC and set with the USB cable.
3) Confirm that the set starts in the USB mode.
4) Start the SEUS on the PC.
5) Click [Connect] on the SEUS screen. If the connection is normal, the SEUS screen will be as shown in Fig. 6-1-10, indicating the "connected" state.

   Note: The SEUS will go in "disconnect" state, if the set is turned off (for instance, by resetting the set). In such a case, click [Connect] on the SEUS screen to restore the "connected" state.

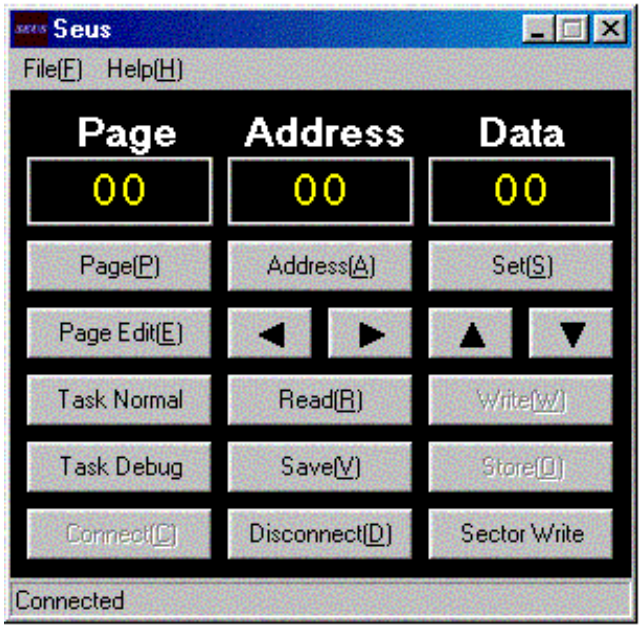


Fig. 6-1-10

2. Operation

- Page change
  To change the page, click [Page] on the SEUS screen and enter the page to be changed. The page is displayed in hexadecimal notation.

- Address change
  To change the address, click [Address] on the SEUS screen and enter the address to be changed. The address is displayed in hexadecimal notation.

- Data change
  To change the data, click [Set] on the SEUS screen and enter the data. The data is displayed in hexadecimal notation.
  This operation does not write the data to the nonvolatile memory.

- Data saving
  To write the all changed data to the nonvolatile memory, click [Save] on the SEUS screen and wait for more than 3 sec.

- Data reading
  The data displayed on the SEUS screen are the data values at the time when the pages and addresses were set, and they are not updated automatically. To check the data change, click [Read] on the SEUS screen and update the displayed data.

1-1-5. Precaution on Use of SEUS

Wrong SEUS operation could clear correct adjustment data. To prevent the data clear by mistake, it is recommended to save all adjustment data by clicking [Page Edit] on the SEUS screen before starting the adjustment.

Saving Method:

1) Click [Page Edit] on the SEUS screen to display the SEUS PAGE EDIT screen.
2) Click [Page], and enter the page number to be saved.
3) Click [Read] to read the data to be saved from the camera.
4) Click [File] and save the data to PC.

Loading Method:

1) Select page: 00, address: 01 and set data: 01.
2) Click [Page Edit] on the SEUS screen to display the SEUS PAGE EDIT screen.
3) Click [File] and load the data from PC.
4) Click [Write] on the SEUS PAGE EDIT screen.
5) Click [Close] to close the SEUS PAGE EDIT screen.
6) Select page: 40, address: 38 and set data: 00.
7) Click [Save] on the SEUS screen.
8) Wait for more than 3 sec.
9) Select page: 80, address: 30, and check that the data is "00".
10) Select page: 00, address: 01 and set data: 00.

1-2. ADJUSTMENT PROGRAMS

The DSC-H1 is adjusted with the Automatic Adjustment Program and the AWB Adjustment Program.
The Automatic Adjustment Program automatically controls the adjustment operations that were formerly entered manually on the operation screen of the SEUS (some adjustments may be manually operated on the SEUS operation screen).
The AWB Adjustment Program automatically performs "AWB 3200K-5800K Standard Data Input" of Camera System Adjustment.

1-2-1. Automatic Adjustment Program

1. Precautions When Using Automatic Adjustment Program

1) The Automatic Adjustment Program writes the adjustment results such as EVR data to the set through two-way communication with the camera via the SEUS. Accordingly, the Automatic Adjustment Program must be used in the environment where the SEUS operates.
2) The program run time may vary depending on the environment of the personal computer used.
3) Even if the Automatic Adjustment Program is used without starting the SEUS, the SEUS will start automatically when the adjustment is executed. However, it may take time for the SEUS to start, and therefore the Automatic Adjustment Program should be used with the SEUS started in order to reduce the program run time.

2. Start of Automatic Adjustment Program

Double-click the application file (DSC-H1 Auto-Adj Ver_1.2r02.exe), and the Automatic Adjustment Program will start.

3. Function of Each Button on Main Menu Screen

When the Automatic Adjustment Program started, the Main Menu screen in Fig. 6-1-11 will appear. On this screen, select each adjustment section.

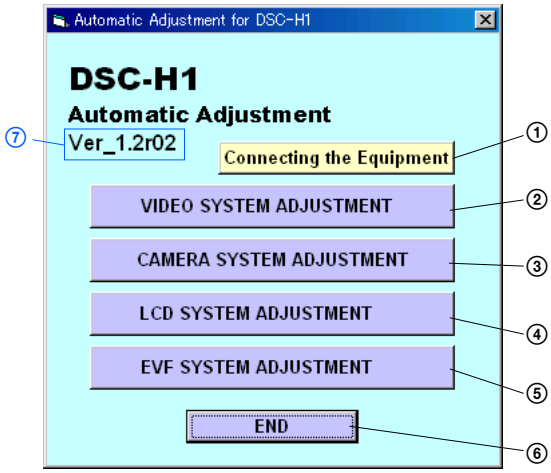


Fig. 6-1-11

① Connecting the Equipment button
A connection diagram of the equipment is displayed.

② VIDEO SYSTEM ADJUSTMENT button
The "VIDEO SYSTEM ADJUSTMENT" screen appears.

③ CAMERA SYSTEM ADJUSTMENT button
The "CAMERA SYSTEM ADJUSTMENT" screen appears.

④ LCD SYSTEM ADJUSTMENT button
The "LCD SYSTEM ADJUSTMENT" screen appears.

⑤ EVF SYSTEM ADJUSTMENT button
The "EVF SYSTEM ADJUSTMENT" screen appears.

⑥ END button
The Automatic Adjustment Program finishes.

⑦ This part indicates the version of Automatic Adjustment Program.

1-2-2. AWB Adjustment Program

1. Application Environment

OS: Windows 98/98SE/Me/2000/XP
RAM: 256MB or more recommended
USB: 2.0 recommended (also compatible with 1.1)
Two connectors are required.

2. Installation Method

Extract the file compressed in the ZIP format (H1AWBAdjustment.zip). Execute the extracted file (setup.exe), and the installer will start. Install the program following the instructions given on the installer screen.

3. Notes When Using the AWB Adjustment Program

1) The SEUS must be installed in the PC.
2) The HASP Key for SEUS must be connected to the USB connector. The program will not start unless the HASP Key is connected.

4. Starting Method of AWB Adjustment Program

Click the [Start] button on the task bar, and click the [DSC-H1 AWB Adjustment] from the [Programs], and the program will start.

5. Screen and Function of Each Button of AWB Adjustment Program

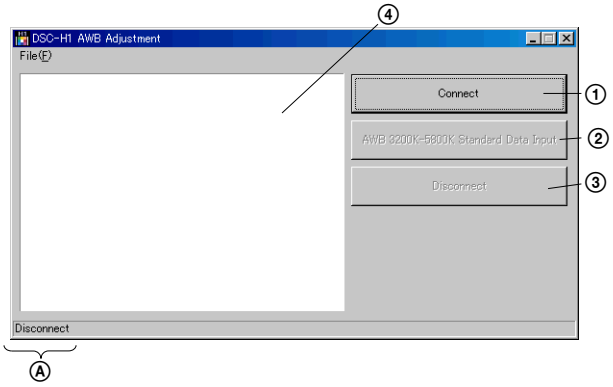


Fig. 6-1-12

① [Connect] button
Makes connection to the camera and switches the camera to the adjustment mode. In the case of successful connection to the camera, the indication at the part Ⓐ changes to "Connected" and the following buttons become active.
- [AWB 3200K-5800K Standard Data Input] button
- [Disconnect] button

② Adjustment start buttons
Start the adjustment or checking of respective button names.

③ [Disconnect] button
Cancels the connection to the camera.

④ Captured picture display screen
Displays a picture captured by the camera when the adjustment or checking was performed.

1-3. VIDEO SYSTEM ADJUSTMENTS

1-3-1. Function of Each Button on Video System Adjustment Screen

Click the [VIDEO SYSTEM ADJUSTMENT] button on the Main Menu screen, and the "VIDEO SYSTEM ADJUSTMENT" screen in Fig. 6-1-13 will appear.

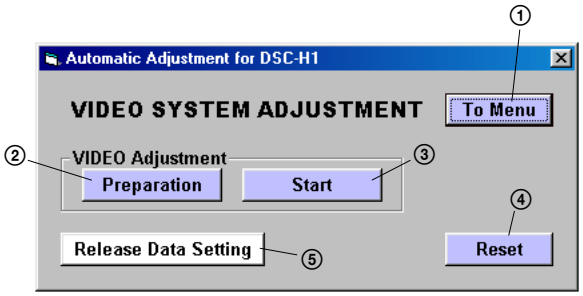


Fig. 6-1-13

① [To Menu] button
The Main Menu screen comes back.

② [Preparation] button
Notes for adjustment or jigs usd are displayed.

③ [Start] button
"Video Adjustment" starts.

④ [Reset] button
This button functions same as the "Initialize" of the setup screen.

⑤ [Release Data Setting] button
The data setting at the adjustment is cancelled.
During the data setting, the button color changes from "white" to "red". When the data setting is cancelled, the button color returns to "white".
(Use this button when an error occurred in the video adjustment. If the adjustment completed successfully, the data setting is automatically cancelled and the button color returns to "white".)

1-3-2. Adjustment Items of VIDEO System Adjustment

The adjustment items of video system adjustment are as listed in Table 6-1-2. The Automatic Adjustment Program executes the adjustment items if the VIDEO Adjustment Start button is clicked.

Button Name	Adjustment	Signal	Page	Address
VIDEO Adjustment	VIDEO Output Level Adj.	Arbitrary	8F	D0

Table 6-1-2

1-3-3. Adjusting Method

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during Video Adj.
2. Video Output Level Adj.
3. Release of Data Setting during Video Adj.

[Specified value of video output level adj.]

Measurement Point	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Specified Value	Sync level: A = 286 ± 5 mV (NTSC mode) A = 300 ± 5 mV (PAL mode) Burst level: B = 286 ± 25 mV (NTSC mode) B = 300 ± 25 mV (PAL mode)

[Adjusting method]

1) Click the [Start] button of the VIDEO Adjustment.
2) The Automatic Adjustment Program executes the "1. Data Setting during Video Adj.".
3) If "1. Data Setting during Video Adj." completed successfully, the next message is displayed during the execution of "2. Video Output Level Adj.". Using the UP/DOWN key on the SEUS Operation screen, adjust so that the sync level of the video signals satisfies the specified value. After the adjustment, check that the burst level of the video signals satisfies the specified value, and click the [OK] button in the message.

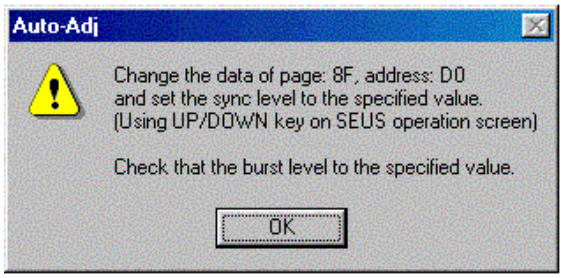

Auto-Adj
Change the data of page: 8F, address: D0
and set the sync level to the specified value.
(Using UP/DOWN key on SEUS operation screen)
Check that the burst level to the specified value.
OK

Fig. 6-1-14

4) If the [OK] button button is clicked, "3. Release of Data Setting during Video Adj." will be executed.
5) Upon successful completion of all items of the VIDEO Adjustment, the following message is displayed. Click the [OK] button.

Fig. 6-1-15

SEUS operation screen

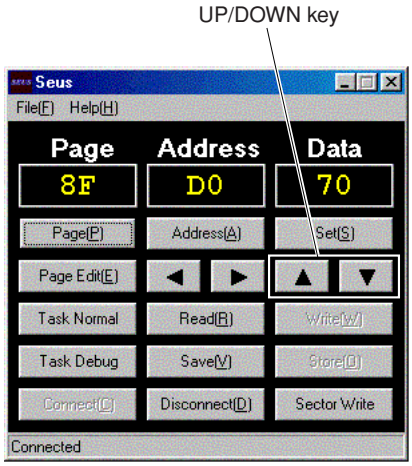


Fig. 6-1-16

Check on the oscilloscope

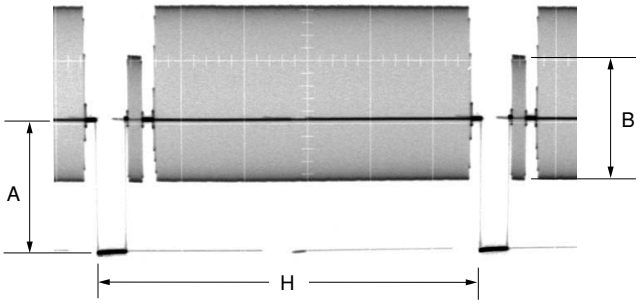


Fig. 6-1-17

1-4. CAMERA SYSTEM ADJUSTMENTS

1-4-1. Function of Each Button on Camera System Adjustment Screen

Click the CAMERA SYSTEM ADJUSTMENT button on the Main Menu screen, and the "CAMERA SYSTEM ADJUSTMENT" screen in Fig. 6-1-18 will appear.

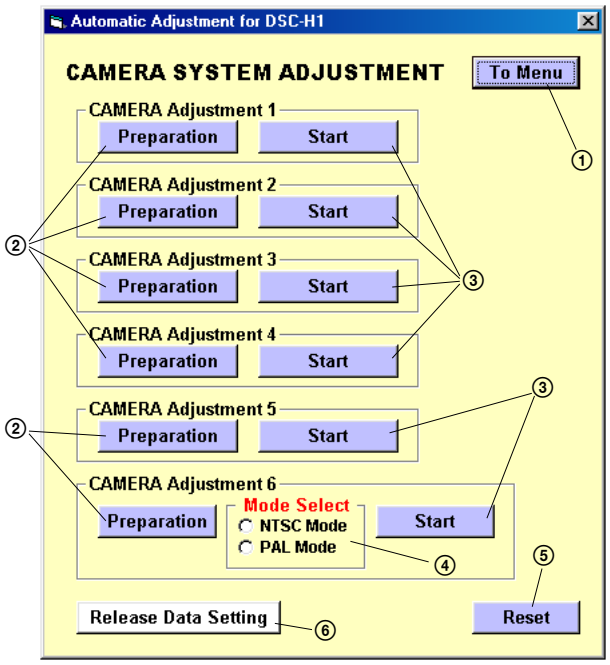


Fig. 6-1-18

① To Menu button
The Main Menu screen comes back.

② Preparation button
Notes for adjustment or jigs used are displayed.

③ Start button
Each adjustment from "Camera Adjustment 1" to "Camera Adjustment 6" starts.

④ Mode Select radio button
Selects the mode to be adjusted.

⑤ Reset button
This button functions same as the "Initialize" of the setup screen.

⑥ Release Data Setting button
The data setting at the adjustment is cancelled.
During the data setting, the button color changes from "white" to "red". When the data setting is cancelled, the button color returns to "white".
(Use this button when an error occurred in the camera adjustment 1-6. If the adjustment completed successfully, the data setting is automatically cancelled and the button color returns to "white".)

1-4-2. Adjustment Items of Camera System Adjustment

The adjustment items of camera system adjustment are as listed in Table 6-1-3. The Automatic Adjustment Program divides the adjustment items into six, camera adjustment 1-6. Clicking either CAMERA Adjustment Start button allows the adjustment item which corresponds to that button to be executed.
The adjustment conditions of the subject and filter vary depending on which item is adjusted. The Adjustment Program displays an instruction for the subject and filter as a message during the adjustment.

Button Name	Adjustment	Subject	Adjustment Page	Adjustment Address
(Note 1)	Wide Limit Adj.	Not required	6F	18, 19
CAMERA Adjustment 1	Flange Back Adj.	Siemens star chart with ND filter for minipattern box (Note 2) or Flange back adjustment jig	6D	A4 to AF, D0 to F7
			6F	18 to 3F, 52, 53
CAMERA Adjustment 2	Flange Back Check	Siemens star (1.0m from front the lens) (Luminance: 200 to 400 lux)	–	–
CAMERA Adjustment 3	F No. Compensation	Clear chart (Standard picture frame)	6F	60 to 63, 6B to 6D
	Measure Gain Adj.		6F	6B, 6F
			78	0C to 0F
	Mechanical Shutter Adj.		6F	6B to 6D, B8 to BD, C7 to C9
			79	40 to 42, 45 to 47, 4A
	Light Value Adj.		6F	65 to 67
(Note 3)	AWB 3200K-5800K Standard Data Input	9 colors chart (Standard picture frame)	6E	00 to 21, 24 to 49
CAMERA Adjustment 4	Color Reproduction Adj. & Check	9 colors chart (Standard picture frame)	6E	60 to 67
	CCD Linearity Check	Clear chart (Standard picture frame)	–	–
	CCD White Defect Compensation Check		–	–
	CCD Black Defect Compensation Check		–	–
CAMERA Adjustment 5	Strobe Adj.	Flash adjustment box (50 cm)	6E	72 to 75
			6F	D8 to EF
	Auto focus illumination Check		6F	10 to 15
CAMERA Adjustment 6	HALL Sensor Gain Adj. (Vertical)	Pattern A (1.5 m from front the lens)	CF	09
	HALL Sensor Gain Adj. (Horizontal)	Pattern B (1.5 m from front the lens)	CF	0A
	Angular Velocity Sensor Sensitivity Adj.	Not required	CF	0B, 0C

Note 1: The Automatic Adjustment Program does not support the “Wide Limit Adjustment”.
Note 2: Dark Siemens star chart.
Note 3: Use the AWB Adjustment Program (H1AwbAdjustment.exe).

Table 6-1-3

1-4-3. Adjusting Method

1. Wide Limit Adjustment

Adjustment to remove variations at the wide end of the inner focus lens.

Adjustment Page	6F
Adjustment Address	18, 19

1-1. Adjusting method when the lens is replaced:

Adjusting method:

Order	Page	Address	Data	Procedure
1	00	01	01	Set the data.
2	40	38	00	Set the data.
3	6F	18		Set the data. (Note)
4	6F	19		Set the data. (Note)
5	7C	16	01 → 00	Change the data. (The data is OK if it is "00".)
6				Save the data.
7				Wait for 2 sec.
8				Perform "Flange Back Adjustment".

Note: The data of page: 6F, address: 18 and 19, that are set in the Orders 2 and 3 as described above, are shown on the data sheet supplied with the replacement lens for repair.
Set the upper single byte of the 2-byte data shown on the sheet to address: 18, and the lower byte of the data to the address: 19.

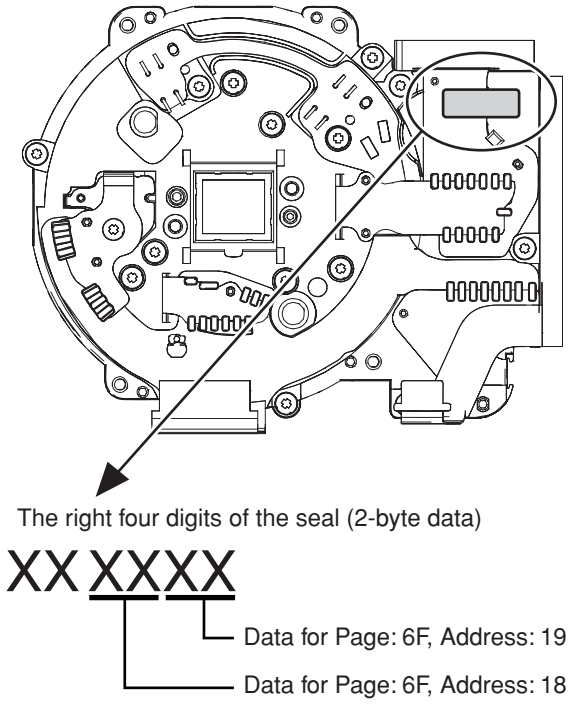


Fig. 6-1-19

1-2. Adjusting method when replacement of lens is not required and the SY-127 board is replaced:

When the data of page: 6F, address: 18 and 19 can be read from the defective SY-127 board before replacement, and both of the data are not "00":

Adjusting method:

Order	Page	Address	Data	Procedure
1	00	01	01	Set the data.
2	40	38	00	Set the data.
3	6F	18		Set the previous data
4	6F	19		Set the previous data
5	7C	16	01 → 00	Change the data. (The data is OK if it is "00".)
6				Save the data.
7				Wait for 2 sec.
8				Perform "Flange Back Adjustment".

When the data of the page: 6F, address: 18 and 19 can be read out from the defective SY-127 board before replacing it, and both of the data are "00":

1) Replace the lens with the replacement lens and perform "1-1. Adjusting method when the lens is replaced".

When the data of page: 6F, address: 18 and 19 cannot be read from the defective SY-127 board:

1) Replace the lens with the replacement lens and perform "1-1. Adjusting method when the lens is replaced".

Note: The data of page: 7C, address: 16, that is set in the Order 4 of the adjusting method of 1-1 or 1-2, is "01" when shipped from the factory. Let the data remain "00" after completion of the service adjustment.

2. CAMERA Adjustment 1

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during Camera Adj.
2. Flange Back Adj.
3. Release of Data Setting during Camera Adj.

[Adjusting method]

1) If the [Start] button of the CAMERA Adjustment 1 is clicked, the following message is displayed.
   If "Wide Limit Adjustment" is necessary, click the [Cancel] button to interrupt the Adjustment Program, and perform "1. Wide Limit Adjustment".

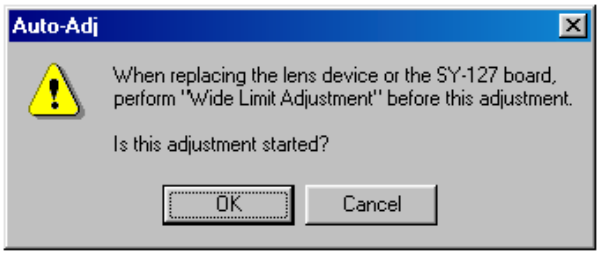

Auto-Adj
When replacing the lens device or the SY-127 board, perform "Wide Limit Adjustment" before this adjustment.
Is this adjustment started?
OK
Cancel

Fig. 6-1-20

2) If the [OK] button is clicked, the Automatic Adjustment Program executes "1. Data Setting during Camera Adj.".
3) Upon successful completion of the "1. Data Setting during Camera Adj.", the following message is displayed. Set the subject by referring to "Preparation of Flange Back Adj.".

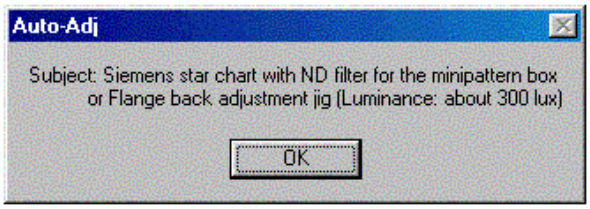

Auto-Adj
Subject: Siemens star chart with ND filter for the minipattern box or Flange back adjustment jig (Luminance: about 300 lux)
OK

Fig. 6-1-21

4) If the [OK] button is clicked, "2. Flange Back Adj." and "3. Release of Data Setting during Camera Adj." will be executed.
5) Upon successful completion of all items of the CAMERA Adjustment 1, the following message is displayed. Click the [OK] button.

Fig. 6-1-22

Preparation of Flange Back Adj.
(Using the minipattern box)

1) The minipattern box is installed as shown in the following figure.
   Note 1: The attachment lenses are not used.
   Note 2: Take care not to hit the mini-pattern box when extending the lens.
2) Install the minipattern box so that the distance between it and the front of lens of camera is less than 3 cm.
3) Make the height of minipattern box and the camera equal.
4) Check the output voltage of the regulated power supply is the specified voltage ± 0.01 Vdc.
5) Check that the center of Siemens star chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

Specified voltage: The specified voltage varies according to the minipattern box, so adjustment the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

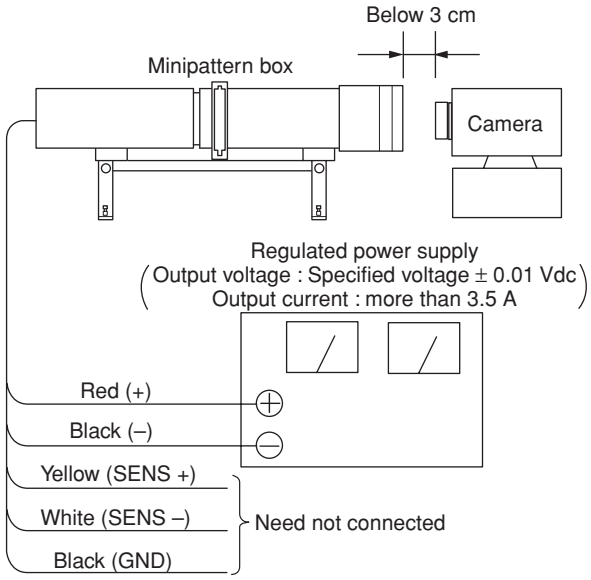


Fig. 6-1-23

Preparation of Flange Back Adj.
(Using the flange back adjustment jig)
(Luminance: about 300 lux)

1) Install the flange back adjustment jig so that the distance between it and the front of lens of camera is less than 3 cm.
   Note 3: Take care not to hit the flange back adjustment jig when extending the lens.
2) Make the height of flange back adjustment jig and the camera equal.
3) Check that the center of chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

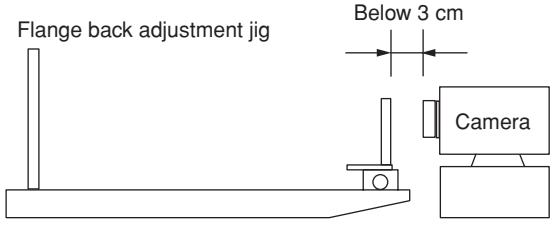


Fig. 6-1-24

3. CAMERA Adjustment 2

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during Camera Adj.
2. Flange Back Check
3. Release of Data Setting during Camera Adj.

[Adjusting method]

1) Click the Start button of the CAMERA Adjustment 2.
2) The Automatic Adjustment Program executes "1. Data Setting during Camera Adj.".
3) Upon successful completion of the "1. Data Setting during Camera Adj.", the following message is displayed. Set the subject in accordance with the message.

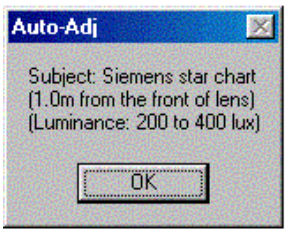


Fig. 6-1-25

4) Click the OK button is clicked, "2. Flange Back Check" is executed. The following messages are displayed, and then operate the camera to make a check in accordance with the messages.

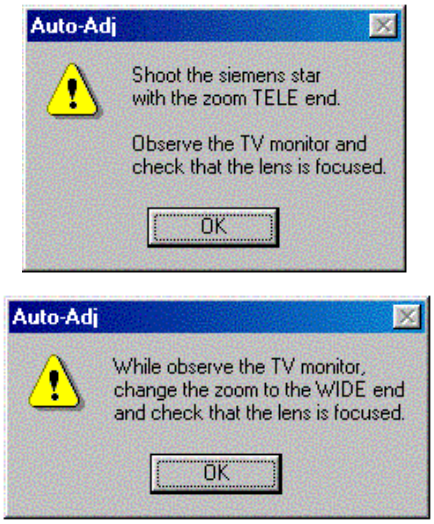


Fig. 6-1-26

5) Upon completion of "2. Flange Back Check", "3. Release of Data Setting during Camera Adj." is executed.

6) Upon successful completion of all items of the CAMERA Adjustment 2, the following message is displayed. Click the OK button.

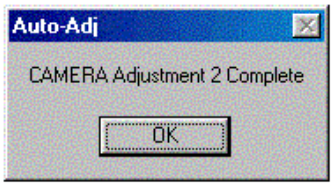


Fig. 6-1-27

4. Picture Frame Setting (Standard Picture Frame)

In the "CAMERA Adjustment 3", "AWB 3200K-5800K Standard Data Input" and "CAMERA Adjustment 4", set the picture frame so as to attain the positions shown in the following figure when shooting the 9 colors chart.

Check on the oscilloscope

Measurement Point: Video terminal of A/V OUT jack
(75Ω terminated)

1. Horizontal period

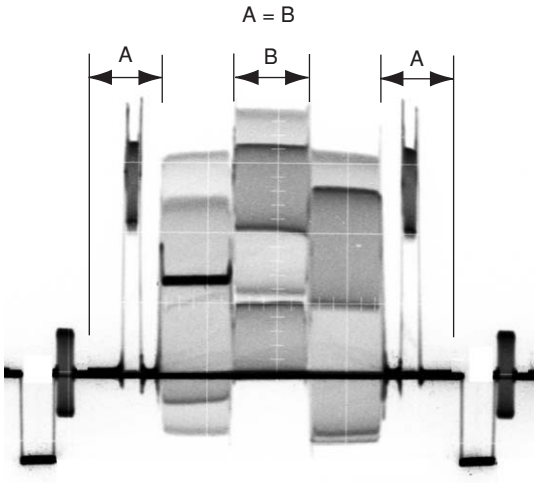


Fig. 6-1-28

2. Vertical period

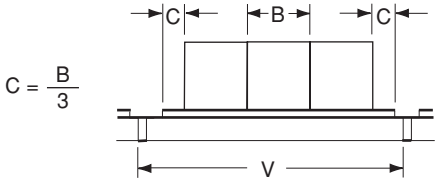


Fig. 6-1-29

Check on the monitor TV or the LCD screen

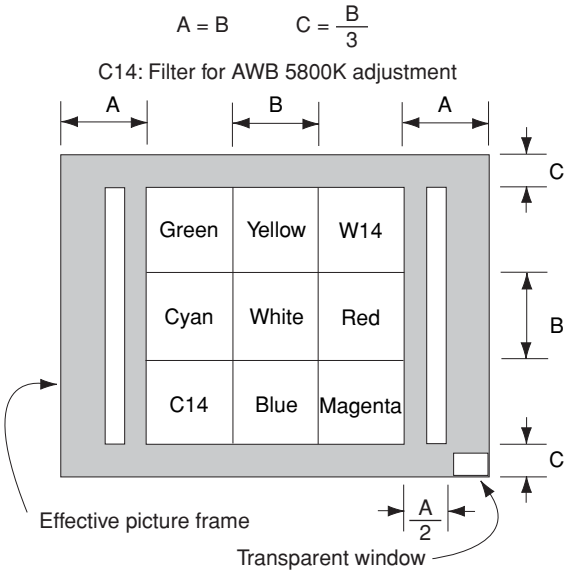


Fig. 6-1-30

5. CAMERA Adjustment 3

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during Camera Adj.
2. Picture Frame Setting
3. F No. Compensation
4. Measure Gain Adj.
5. Mechanical Shutter Adj.
6. Light Value Adj.
7. Release of Data Setting during Camera Adj.

[Adjusting method]

1) Click the Start button of the CAMERA Adjustment 3.
2) The Automatic Adjustment Program executes the "1. Data Setting during Camera Adj.".
3) Upon successful completion of "1. Data Setting during Camera Adj.", "2. Picture Frame Setting" is executed. The following message is displayed, and then referring to Fig. 6-1-28 to Fig. 6-1-30 (See page 6-17), set the subject and click the OK button.

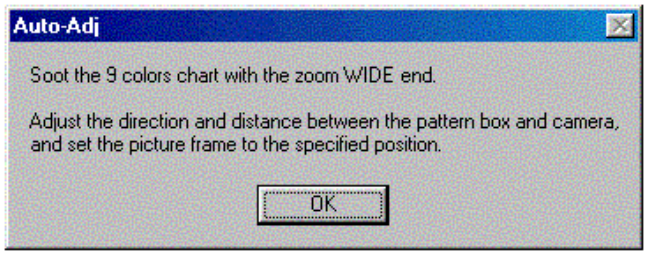

Auto-Adj
Soot the 9 colors chart with the zoom WIDE end.
Adjust the direction and distance between the pattern box and camera, and set the picture frame to the specified position.
OK

Fig. 6-1-31

After that, the next message is displayed. Then, change the chart in accordance with the message.

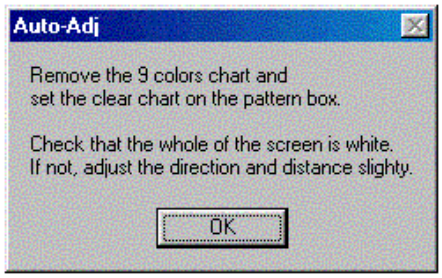

Auto-Adj
Remove the 9 colors chart and set the clear chart on the pattern box.
Check that the whole of the screen is white. If not, adjust the direction and distance slighty.
OK

Fig. 6-1-32

4) Click the OK button, and the items from "3. F No. Compensation" to "7. Release of Data Setting during Camera Adj." will be executed.
5) Upon successful completion of all items of the CAMERA Adjustment 3, the following message is displayed. Click the OK button.

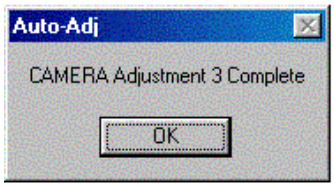


Fig. 6-1-33

6. AWB 3200K-5800K Standard Data Input

[Adjustment method]

1) Start the AWB Adjustment Program (H1AwbAdjustment.exe).
2) Click the Connect button to set the camera to the adjustment mode.

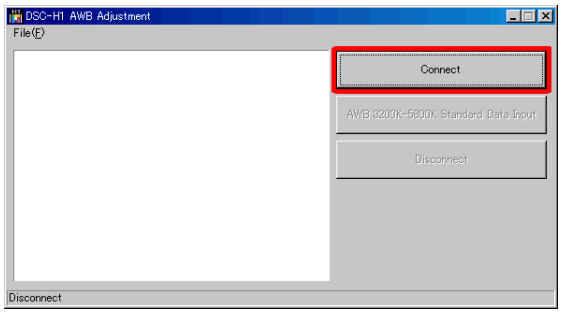


Fig. 6-1-34

3) Adjust the mode dial of the camera to "CAMERA" and set MACRO mode. Shoot the 9 colors chart with the zoom at WIDE end.
4) Adjust the camera direction and distance to set the picture frame. (Refer to 4. Picture Frame Setting)
5) Click the AWB 3200K-5800K Standard Data Input button.

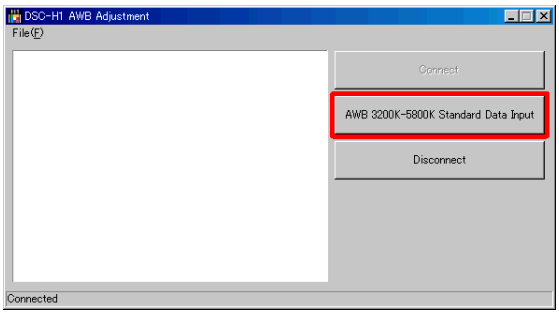


Fig. 6-1-35

6) A picture captured by the camera is displayed on the screen, and the adjustment and checking are performed.

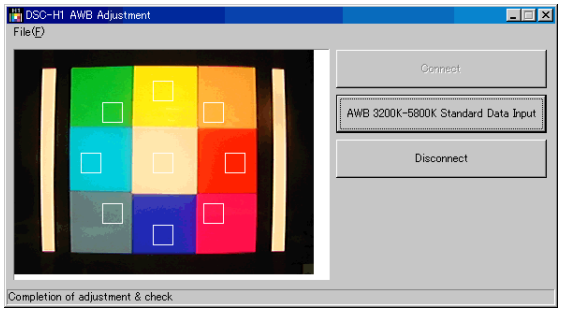


Fig. 6-1-36

Note: If the following message is displayed, the picture frame setting is faulty. Check the picture frame, and then perform readjustment.

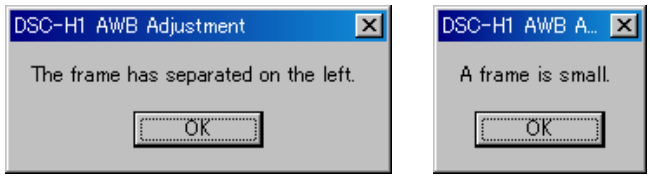


Fig. 6-1-37

7) Upon successful completion of the adjustment, the following message is displayed. Click the OK button.

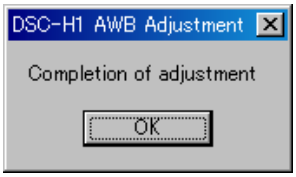


Fig. 6-1-38

8) Perform the "Camera Adjustment 4" successively without turning off the power switch of the camera.

7. CAMERA Adjustment 4

Note: After executing the "AWB 3200-5800K Standard Data Input" perform the "CAMERA Adjustment 4" successively without turning off the power switch of the camera.

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during Camera Adj.
2. Picture Frame Setting
3. Color Reproduction Adj. & Check
4. CCD Linearity Check
5. CCD White Defect Compensation Check
6. CCD Black Defect Compensation Check
7. Release of Data Setting during Camera Adj.

[Adjusting method]

1) Click the Start button of the CAMERA Adjustment 4.
2) The Automatic Adjustment Program executes the "1. Data Setting during Camera Adj.".
3) Upon successful completion of "1. Data Setting during Camera Adj.", "2. Picture Frame Setting" is executed. The following message is displayed, and then referring to Fig. 6-1-28 to Fig. 6-1-30 (See page 6-17), set the subject and click the OK button.

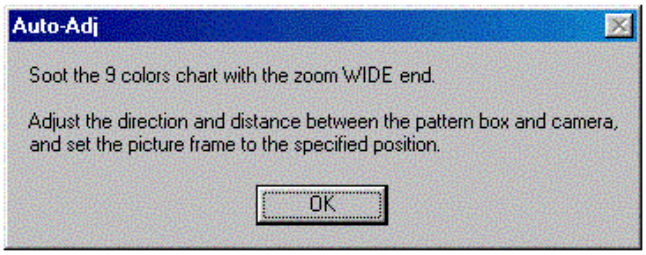

Auto-Adj
Soot the 9 colors chart with the zoom WIDE end.
Adjust the direction and distance between the pattern box and camera, and set the picture frame to the specified position.
OK

Fig. 6-1-39

4) After that, "3. Color Reproduction Adj. & Check" will be executed. Upon completion of adjustment, the check result is displayed on the Color Reproduction Check screen.

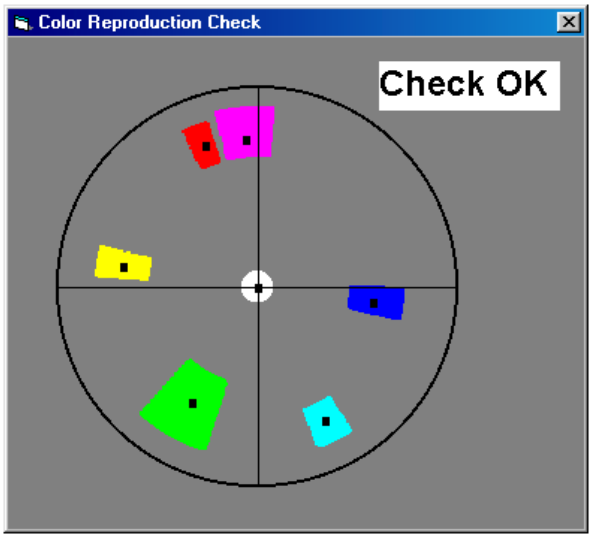


Fig. 6-1-40

At this time, the following message is displayed, and click the Yes button if the check result display at the upper right of Color Reproduction Check screen is OK, or the No button if NG.

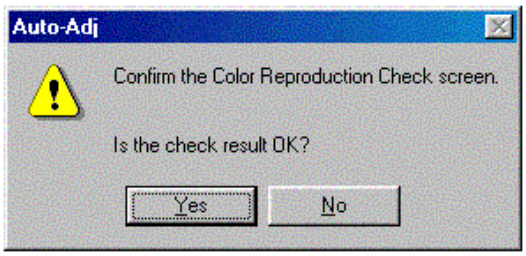


Fig. 6-1-41

5) Upon successful completion of "3. Color Reproduction Adj. & Check", the following message is displayed. Change the chart in accordance with the message.

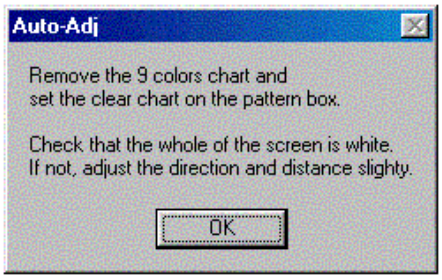

Auto-Adj
Remove the 9 colors chart and set the clear chart on the pattern box.
Check that the whole of the screen is white. If not, adjust the direction and distance slighty.
OK

Fig. 6-1-42

6) Click the OK button, and the items from "4. CCD Linearity Check" to "7. Release of Data Setting during Camera Adj." will be executed.
7) Upon successful completion of all items of the CAMERA Adjustment 4, the following message is displayed. Click the OK button.

Fig. 6-1-43

8. CAMERA Adjustment 5

Note: "CAMERA Adjustment 5" is available only once after the power is turned on. If the adjustment is retried, turn off the power and turn on again.

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during Camera Adj.
2. Strobe Adj.
3. Auto Focus Illumination Check
4. Release of Data Setting during Camera Adj.

[Adjusting method]

1) Click the Start button of CAMERA Adjustment 5.
2) The Automatic Adjustment Program executes the "1. Data Setting during Camera Adj.".
3) Upon successful completion of the "1. Data Setting during Camera Adj.", the following message is displayed. Set the subject in accordance with the message.
   (For the Flash adjustment box, refer to "3. Preparing the Flash Adjustment Box" (see page 6-7).)

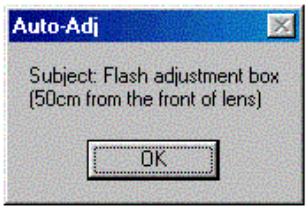


Fig. 6-1-44

4) Press the OK button, and the "2. Strobe Adj." will be executed.
5) During execution of "2. Strobe Adj.", the following message is displayed. After checking the flashing of strobe light, click the OK button. (This message is displayed 2 times during execution of adjustment.)

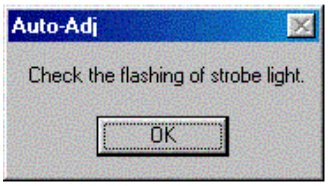


Fig. 6-1-45

6) Upon successful completion of "2. Strobe Adj.", "3. Auto Focus Illumination Check" is executed.
7) Upon successful completion of the "3. Auto Focus Illumination Check", the "4. Release of Data Setting during Camera Adj." will be executed successively.
8) Upon successful completion of all items of the CAMERA Adjustment 5, the following message is displayed. Click the OK button.

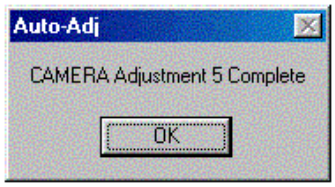


Fig. 6-1-46

9. CAMERA Adjustment 6

Note: Perform this adjustment only when replacing the lens block or the angular velocity sensor. When the microprocessor, circuit etc. is damaged, don't perform this adjustment but check the operations only.

[Precautions on the Parts Replacement]

There are two types of repair parts.

Type A: ECN-03MA
Type B: ECN-03MB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during steady shot operations. After replacing, re-adjust according to the adjusting method after replacement.

[Precautions on Angular Velocity Sensor]

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during Camera Adj.
2. HALL Sensor Gain Adj. (Vertical)
3. HALL Sensor Gain Adj. (Horizontal)
4. Angular Velocity Sensor Sensitivity Adj.
5. Release of Data Setting during Camera Adj.

[Measurement point of CAMERA Adjustment 6]

Measurement Point	Video terminal of A/V OUT jack
Measuring Instrument	Oscilloscope

[Adjusting method]

1) Select the mode (NTSC Mode or PAL Mode) with the Mode Select radio button.
2) Click the Start button of the CAMERA Adjustment 6.
3) The Automatic Adjustment Program executes "1. Data Setting during Camera Adj.".
4) If "1. Data Setting during Camera Adj." finished normally, the following screen will be displayed. Operate this screen to perform "2. HALL Sensor Gain Adj. (Vertical)".

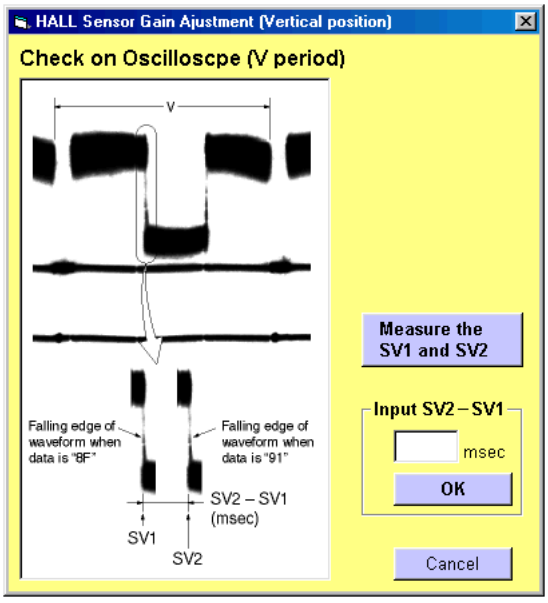


Fig. 6-1-47

5) Click the Measure the SV1 and SV2 button on the screen.
6) The following message will be displayed, and then set the subject in accordance with the message.

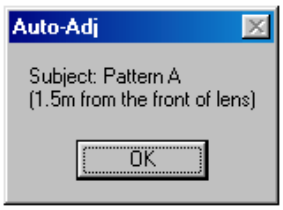


Fig. 6-1-48

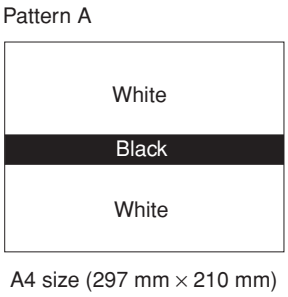


Fig. 6-1-49

7) After setting the subject, click the OK button, and the following message will be displayed. With the camera zoom at TELE end, focus the subject by manual focusing operation.

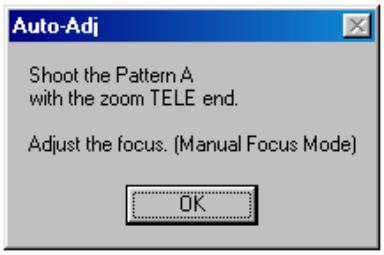


Fig. 6-1-50

8) After that, the messages will be displayed in the following order. Measure the SV2 and SV1 by observing the waveform of the VIDEO terminal using an oscilloscope.

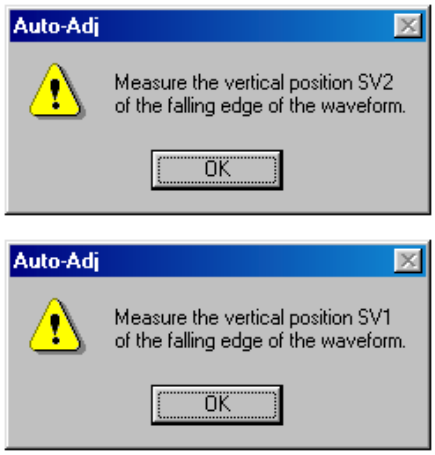


Fig. 6-1-51

9) Calculate a difference between SV2 and SV1, "SV2 - SV1", and enter that value in the entry block on the screen, and then click the OK button.

10) Automatic adjustment program calculates the adjustment value, and writes this data to the camera. If this operation finished normally, the following screen will be displayed. Operate this screen to perform "3. HALL Sensor Gain Adj. (Horizontal)".

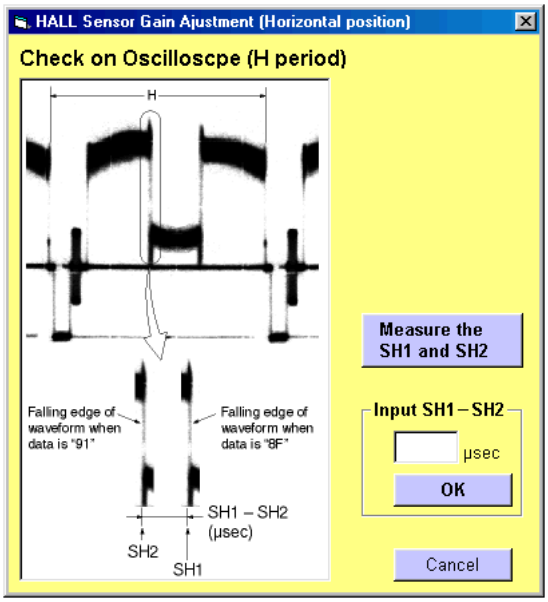


Fig. 6-1-52

11) Click the [Measure the SH1 and SH2] button on the screen.
12) The following message will be displayed, and then set the subject in accordance with the message.

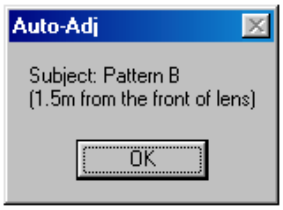


Fig. 6-1-53

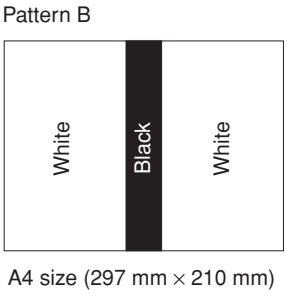


Fig. 6-1-54

13) After setting the subject, click the [OK] button, and the following message will be displayed. With the camera zoom at TELE end, focus the subject by manual focusing operation.

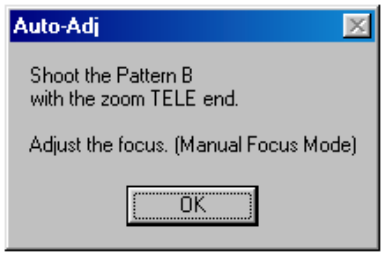


Fig. 6-1-55

14) After that, the messages will be displayed in the following order. Measure the SH2 and SH1 by observing the waveform of the VIDEO terminal using an oscilloscope.

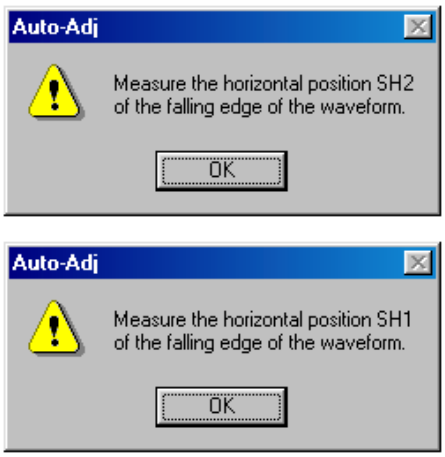


Fig. 6-1-56

15) Calculate a difference between SH2 and SH1, "SH2 - SH1", and enter that value in the entry block on the screen, and then click the [OK] button.
16) Automatic adjustment program calculates the adjustment value, and writes this data to the camera.
17) Upon completion of the "3. HALL Sensor Gain Adj. (Horizontal)", "4. Angular Velocity Sensor Sensitivity Adj." and "5. Release of Data Setting during Camera Adj." will be executed.
18) Upon successful completion of all items of the CAMERA Adjustment 6, the following message is displayed. Click the [OK] button.

Fig. 6-1-57

1-5. LCD SYSTEM ADJUSTMENTS

1-5-1. Function of Each Button on LCD System Adjustment Screen

Click the LCD SYSTEM ADJUSTMENT button on the Main Menu screen, and the "LCD SYSTEM ADJUSTMENT" screen in Fig. 6-1-58 will appear.

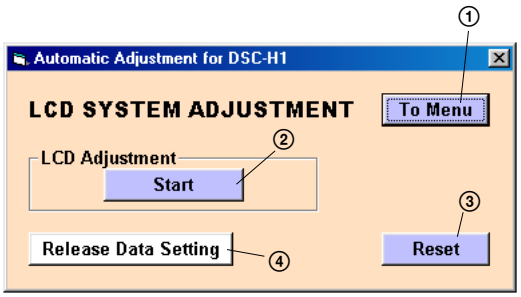


Fig. 6-1-58

① To Menu button
The Main Menu screen comes back.

② Start button
"LCD Adjustment" starts.

③ Reset button
This button functions same as the "Initialize" of the setup screen.

④ Release Data Setting button
The data setting at the adjustment is cancelled.
During the data setting, the button color changes from "white" to "red". When the data setting is cancelled, the button color returns to "white".
(Use this button when an error occurred in the LCD adjustment. If the adjustment completed successfully, the data setting is automatically cancelled and the button color returns to "white".)

1-5-2. Adjustment Items of LCD System Adjustment

The adjustment items of LCD system adjustment are as listed in Table 6-1-4. The Automatic Adjustment Program executes the adjustment items if the LCD Adjustment Start button is clicked.

Button Name	Adjustment	Signal	Page	Address
LCD Adjustment	V-COM adj.	Arbitrary	8F	11
	White Balance adj.		8F	19, 1A

Table 6-1-4

1-5-3. Adjusting Method

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during LCD Adj.
2. V-COM Adj.
3. White Balance Adj.
4. Release of Data Setting during LCD Adj.

[Adjusting method]

1) Click the [Start] button of the LCD Adjustment.
2) The Automatic Adjustment Program executes "1. Data Setting during LCD Adj."
3) Upon successful completion of the "1. Data setting during LCD Adj.", the following message is displayed during execution in "2. V-COM Adj.". On the SEUS screen, operate the UP/DOWN key so that the brightness of portions A and B on the LCD panel is equal. After the adjustment, click the [OK] button.

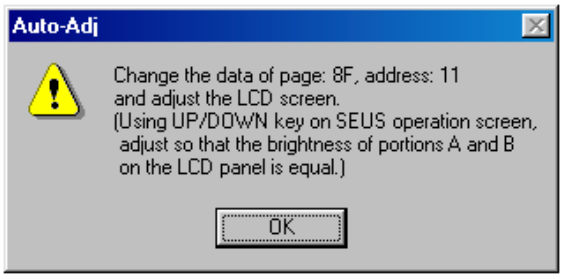

Auto-Adj
Change the data of page: 8F, address: 11
and adjust the LCD screen.
(Using UP/DOWN key on SEUS operation screen,
adjust so that the brightness of portions A and B
on the LCD panel is equal.)
OK

Fig. 6-1-59

4) Upon completion of "2. V-COM Adj.", "3. White Balance Adj." is executed. The following message is displayed, and then check that LCD screen is not colored.
   If colored, change the data of page: 8F, address: 19 and 1A on the SEUS Operation screen to adjust so that the LCD screen is not colored.

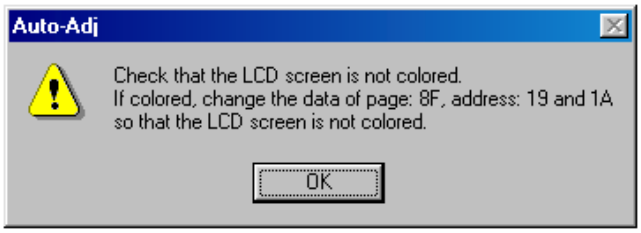

Auto-Adj
Check that the LCD screen is not colored.
If colored, change the data of page: 8F, address: 19 and 1A
so that the LCD screen is not colored.
OK

Fig. 6-1-60

5) If the [OK] button is clicked, "4. Release of Data Setting during LCD Adj." will be executed.
6) Upon successful completion of all item the LCD Adjustment, the following message is displayed. Click the [OK] button.

Fig. 6-1-61

SEUS operation screen

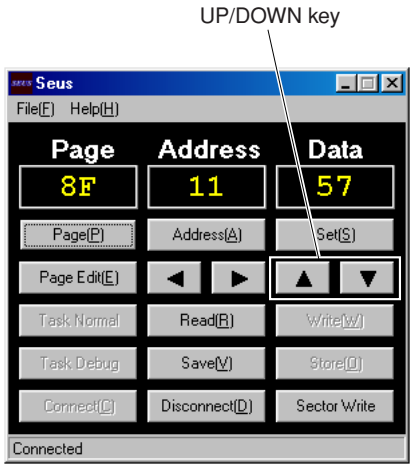


Fig. 6-1-62

Check on the LCD screen (V-COM Adj.)

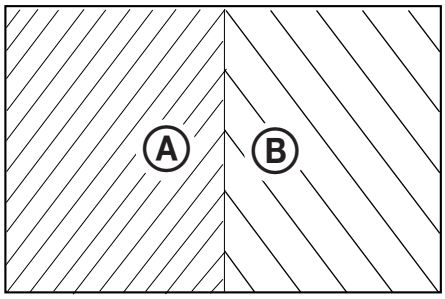


Fig. 6-1-63

1-6. EVF SYSTEM ADJUSTMENTS

1-6-1. Function of Each Button on EVF System Adjustment Screen

Click the [EVF SYSTEM ADJUSTMENT] button on the Main Menu screen, and the "EVF SYSTEM ADJUSTMENT" screen in Fig. 6-1-64 will appear.

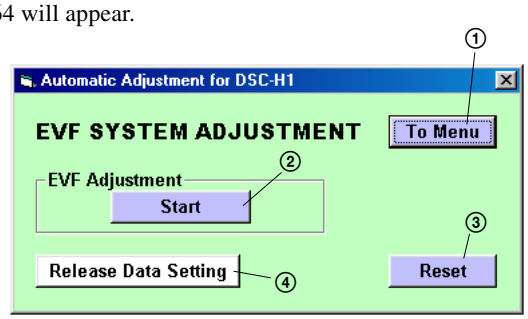


Fig. 6-1-64

① [To Menu] button
The Main Menu screen comes back.

② [Start] button
"EVF Adjustment" starts.

③ [Reset] button
This button functions same as the "Initialize" of the setup screen.

④ [Release Data Setting] button
The data setting at the adjustment is cancelled.
During the data setting, the button color changes from "white" to "red". When the data setting is cancelled, the button color returns to "white".
(Use this button when an error occurred in the EVF adjustment. If the adjustment completed successfully, the data setting is automatically cancelled and the button color returns to "white".)

1-6-2. Adjustment Items of EVF System Adjustment

The adjustment items of EVF system adjustment are as listed in Table 6-1-5. The Automatic Adjustment Program executes the adjustment items if the EVF Adjustment Start button is clicked.

Button Name	Adjustment	Signal	Page	Address
EVF Adjustment	White Balance adj.	Arbitrary	8F	89, 8A

Table 6-1-5

1-6-3. Adjusting Method

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during EVF Adj.
2. White Balance Adj.
3. Release of Data Setting during EVF Adj.

[Adjusting method]

1) Click the [Start] button of the EVF Adjustment.
2) The Automatic Adjustment Program executes "1. Data Setting during EVF Adj."
3) Upon successful completion of the "1. Data setting during EVF Adj.", "2. White Balance Adj." is executed. The following message is displayed, and then check that EVF screen is not colored.
   If colored, change the data of page: 8F, address: 89 and 8A on the SEUS Operation screen to adjust so that the EVF screen is not colored.

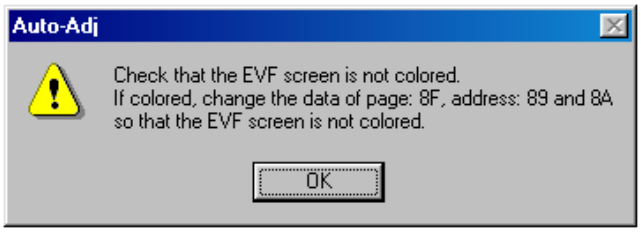

Auto-Adj
Check that the EVF screen is not colored.
If colored, change the data of page: 8F, address: 89 and 8A so that the EVF screen is not colored.
OK

Fig. 6-1-65

4) If the [OK] button is clicked, "3. Release of Data Setting during EVF Adj." will be executed.
5) Upon successful completion of all item the EVF Adjustment, the following message is displayed. Click the [OK] button.

Fig. 6-1-66

1-7. ERROR

In case of an error during the execution of adjustment, the Automatic Adjustment Program interrupts the processing at that point, and displays an error message, and then terminates the program execution there.

1-7-1. Error Message

When an error message is displayed, perform the remedy given below, and then retry adjustment. If the error message is displayed though the remedy was performed, the circuits will be faulty.

1. Connect Error

Fig. 6-1-67

Symptom	USB communication with the set is abnormal.
Cause	• USB cable is not inserted tightly. • Power supply is not installed correctly. • Communication with SEUS is abnormal.
Remedy	• Disconnect the USB cable once, and then reconnect it tightly and check that the set is in "USB Mode". • Install the power supply correctly. • Start the SEUS and click the Connect to check that the connection state is established.

2. RESET the CAMERA and Try Again

Fig. 6-1-68

Symptom	The camera is not ready for adjustment.
Cause	• Data error exists in the camera.
Remedy	• Reset the camera.

3. Adjustment Time Out

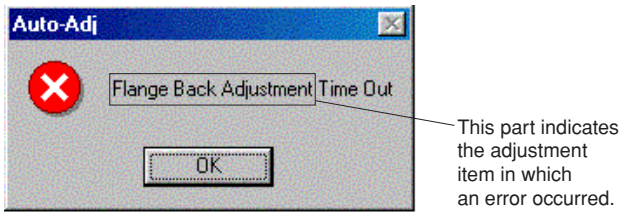


Fig. 6-1-69

Symptom	Adjustment does not finish within the specified time.
Cause	• Adjustment conditions are wrong. • Data error exists in the camera.
Remedy	• Check that the conditions such as a subject are correct. • Reset the camera.

4. Adjustment NG

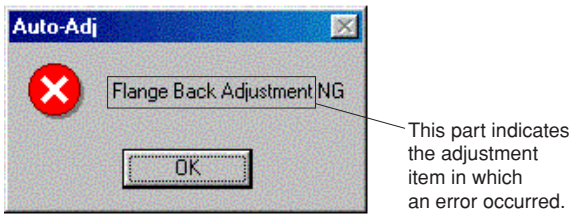


Fig. 6-1-70

Symptom	The adjusted data does not become the specified value.
Cause	• Adjustment conditions are wrong. • Data error exists in the camera.
Remedy	• Check that the conditions such as a subject are correct. • Reset the camera.

5. Data Save Error

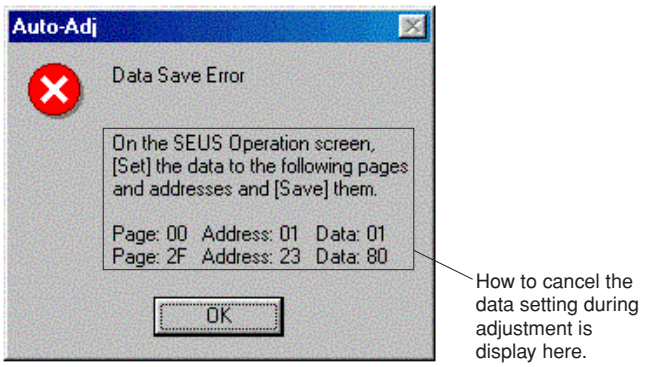

Auto-Adj
Data Save Error
On the SEUS Operation screen, [Set] the data to the following pages and addresses and [Save] them.
Page: 00 Address: 01 Data: 01
Page: 2F Address: 23 Data: 80
OK
How to cancel the data setting during adjustment is display here.

Fig. 6-1-71

Symptom	data cannot be saved normally. (The data setting during adjustment cannot be cancelled)
Cause	• Data writing to the flash memory failed. • Connection is faulty. • Power supply is not installed correctly.
Remedy	• On the SEUS Operation screen, Set the data to the pages and addresses displayed in the message, and Save them. (Cancel manually the data setting during adjustment.) • Check the connection. • Install the power supply correctly.

1-7-2. Precautions When an Error Occurred

The Automatic Adjustment Program sets the data for adjustment before the adjustment starts. Accordingly, if the adjustment terminates by an error, the data during the adjustment may be left in the camera.

Note 1: With this data left in the camera, the camera will not operate normally.

In this case, the Release Data Setting button is displayed in "red" on the screen as shown in Fig. 6-1-72 to Fig. 6-1-75. Click the Release Data Setting button to cancel the data setting. When the data setting is cancelled, the button color becomes "white".

Note 2: When "Data Save Error" occurred, the Release Data Setting button is displayed in "white".
To cancel the data setting, perform it on the SEUS Operation screen. How to cancel the data setting is displayed in the error message.

Video System Adjustment screen

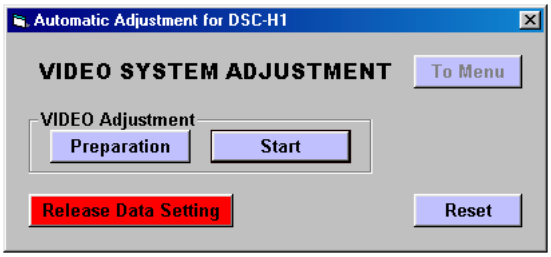


Fig. 6-1-72

Camera System Adjustment screen

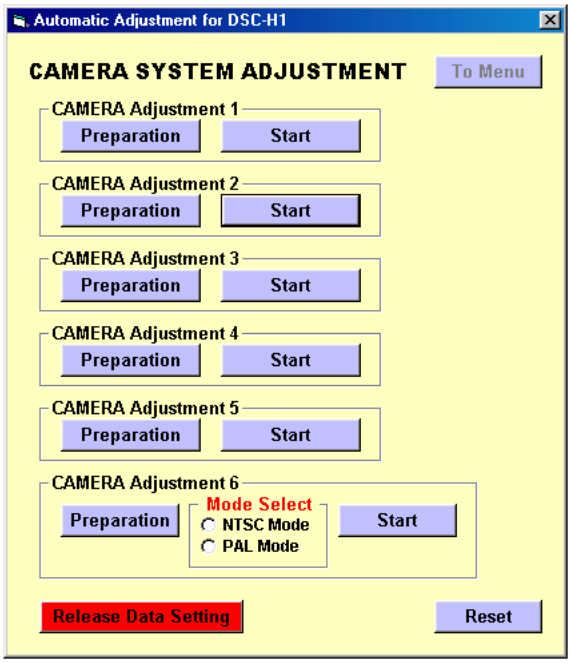


Fig. 6-1-73

LCD System Adjustment screen

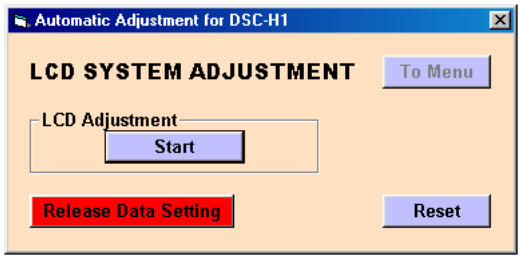


Fig. 6-1-74

EVF System Adjustment screen

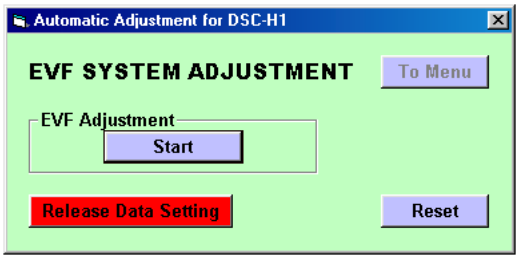


Fig. 6-1-75

1-8. INITIALIZATION OF DATA

1. Initializing All Page Data

By performing the following procedure, data of all pages will be initialized.

Note: If all page data have been initialized, all adjustments need to be performed again.

Initializing Method:

1) Select page: 00, address: 01 and set data: 01.
2) Click [Sector Write] on the SEUS screen to display the SEUS SECTOR WRITE screen.
3) Check that the SET ID is "09".
4) Click [All] of the ALL SELECT buttons to select all pages. (Fig. 6-1-76 Ⓐ)
5) Click [Write] to write the initializing data to the flash memory of the camera.
6) Wait for 3 sec.
7) Click [Close] to close the SEUS SECTOR WRITE screen.
8) Select page: 40, address: 38 and set data: 00.
9) Click [Save] on the SEUS screen.
10) Wait for more than 3 sec.
11) Select page: 80, address: 30, and check that the data is "00".

Processing after Completing Initializing

Order	Page	Address	Data	Procedure
1	40	28	01 [Set]	(Note)

Note: At this time, the camera is reset and the power is turns off once and then on again. Accordingly, the SEUS goes in "disconnect" state, but this is not a trouble. Click [Connect] on the SEUS screen to restore the "connected" state. (In case that the power does not turn on again, press the power button.)

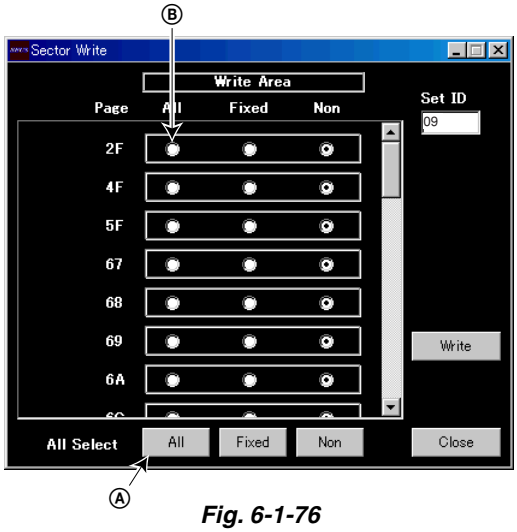


Fig. 6-1-76

2. Initializing Single Page Data

By performing the following procedure, data of the page that you want to initialize will be initialized.

Note 1: If the 6D or 6E or 6F or 78 or 79 page data have been initialized, the following adjustment needs to be performed again.
1) Camera system adjustments

Note 2: If the 8F page data have been initialized, the following adjustment needs to be performed again.
1) Video system adjustments
2) LCD system adjustments
3) EVF system adjustments

Initializing Method:

1) Select page: 00, address: 01 and set data: 01.
2) Click [Sector Write] on the SEUS screen to display the SEUS SECTOR WRITE screen.
3) Check that the SET ID is "09".
4) Click "All" of the option buttons of target page. (Fig. 6-1-76 Ⓑ)
5) Click [Write] to write the initializing data to the flash memory of the camera.
6) Wait for 3 sec.
7) Click [Close] to close the SEUS SECTOR WRITE screen.
8) Select page: 40, address: 38 and set data: 00.
9) Click [Save] on the SEUS screen.
10) Wait for more than 3 sec.
11) Select page: 80, address: 30, and check that the data is "00".

Processing after Completing Initializing

Order	Page	Address	Data	Procedure
1	40	28	01 [Set]	(Note)

Note: At this time, the camera is reset and the power is turns off once and then on again. Accordingly, the SEUS goes in "disconnect" state, but this is not a trouble. Click [Connect] on the SEUS screen to restore the "connected" state. (In case that the power does not turn on again, press the power button.)

6-2. SERVICE MODE

1. Setting the Test Mode

Page 40	Address A1, A3

• Forced CAMERA (Auto) mode
1) Select page: 40, address: A1, and set data: 01.
2) Select page: 40, address: A3, and set data: 01.

• Forced CAMERA (Program Auto) mode
1) Select page: 40, address: A1, and set data: 01.
2) Select page: 40, address: A3, and set data: 02.

• Forced MOVIE mode
1) Select page: 40, address: A1, and set data: 01.
3) Select page: 40, address: A3, and set data: 07.

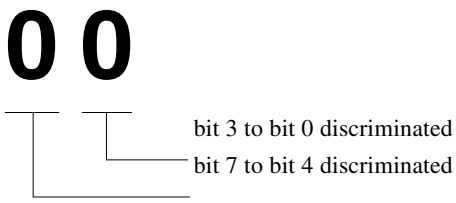
• Forced PLAY mode
1) Select page: 40, address: A1, and set data: 01.
2) Select page: 40, address: A3, and set data: 08.

• After completing adjustments/repairs, release the data setting.
1) Select page: 40, address: A1, and set data: 00.

2. Bit Value Discrimination

In the following items, the bit values must be discriminated from the data displayed on the SEUS. Whether bit values are "1" or "0" can be discriminated from the table shown below.

Data displayed on SEUS



	Display on the SEUS	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A	1	0	1	0
	B	1	0	1	1
	C	1	1	0	0
	D	1	1	0	1
Ⓑ	E	1	1	1	0
	F	1	1	1	1

Example: If the displayed data is "8E", bit 7 - bit 4 values can be discriminated from block (A), and also bit 3 - bit 0 values from block (B).

3. LED Check

Page 80	Address 12
Page 8E	Address FE

Using method:

1) Select page: 00, address: 01, and set data: 01.
2) Select page: 40, address: 98, and check that the data is “00”.
3) Select page: 8E, address: FE, and set data: 20.
4) Select page: 80, address: 12, and set data: 01.
5) Check that all LED are lit.
   - SELF TIMER/AF ILLUMINATOR
   - FLASH CHARGE
   - MS ACCESS
6) Select page: 80, address: 12, and set data: 02.
7) Select page: 80, address: 12, and set data: 00.
8) Select page: 8E, address: FE, and set data: 00.
9) Select page: 00, address: 01, and set data: 00.

4. Switch Check (1)

Page 80	Address 13

Function	When data = 00	When data = 01	When data = 02
Shutter button (XAE LOCK SW) (CONTROL SWITCH BLOCK)	OFF	ON	ON
Shutter button (XSHUTTER SW) (CONTROL SWITCH BLOCK)	OFF	OFF	ON

Using method:

1) Select page: 80, address: 13.
2) By discriminating the read data, the state of the switches can be discriminated.

5. Switch Check (2)

Page CF	Address 82

Function	When data = 00	When data = 01
Steady shot button (CONTROL SWITCH BLOCK)	OFF	ON

Using method:

1) Set the mode dial to “P (Program auto)”.
2) Select page: CF, address: 82.
3) By discriminating the read data, the state of the switches can be discriminated.

6. Switch Check (3)

Page 20	Address 60

Function	When data = 00	When data = 01
Lens cap switch (AF-102 board S001)	ON (Lens cap attached)	OFF

Using method:

1) Select page: 20, address: 60.
2) By discriminating the read data, the state of the switches can be discriminated.

7. Switch Check (4)

Page 80	Address 15

Function	Data
Jog dial (When rotated in the left direction) (CONTROL SWITCH BLOCK)	01
Jog dial (When rotated in the right direction) (CONTROL SWITCH BLOCK)	02
Jog dial (When press the jog dial) (CONTROL SWITCH BLOCK)	03

Using method:

1) Select page: 80, address: 15.
2) By discriminating the read data, the state of the jog dial can be discriminated.

8. Switch Check (5)

Page 20	Addresses A0 to A2

Using method:

1) Select page: 20, addresses: A0 to A2.
2) By discriminating the read data, the pressed key can be discriminated.

Address	Data						
	00 to 16	17 to 3D	3E to 59	5A to 78	79 to AB	AC to D7	D8 to FF
A0 (KEY AD0) (IC301 K23)	CONTROL DOWN (SW-447 board) (S458)	CONTROL RIGHT (SW-447 board) (S460)	CONTROL UP (SW-447 board) (S456)	CONTROL LEFT (SW-447 board) (S454)	CONTROL SET (SW-447 board) (S457)	IMAGE SIZE/DELETE (SW-447 board) (S453)	No key input
A1 (KEY AD1) (IC301 L23)	ZOOM W (fast) (SW-447 board) (S459)	ZOOM W (slow) (SW-447 board) (S459)	ZOOM W (fast) (SW-447 board) (S455)	ZOOM W (slow) (SW-447 board) (S455)	MENU (SW-447 board) (S452)	SCREEN STATUS (SW-447 board) (S451)	No key input
A2 (KEY AD2) (IC301 G25)	FINDER/LCD (Control switch block)		FOCUS (Control switch block)		BRK (Control switch block)	JOG DIAL (press) (Control switch block)	No key input

9. Mode Dial Check

Page 20	Addresses A3, A4

Using method:

1) Select page: 20, addresses: A3 and A4.
2) By discriminating the read data, the state of the mode dial can be discriminated.

Address	Data							
	00 to 11	12 to 36	37 to 5B	5C to 7F	80 to A3	A4 to C7	C8 to E9	EA to FF
A3 (MODE DIAL0) (IC301 L22)	A (Aperture) (Control switch block)	S (Shutter speed) (Control switch block)	P (Program Auto) (Control switch block)	AUTO (Control switch block)	PLAY (Control switch block)	MOVIE (Control switch block)	Portrait (Control switch block)	Others
A4 (MODE DIAL1) (IC301 L25)	M (manual) (Control switch block)	Twilight (Control switch block)	Twilight portrait (Control switch block)	Candle (Control switch block)	Beach (Control switch block)	High-speed shutter (Control switch block)	Landscape (Control switch block)	Others

10. Self Diagnosis Code

Display Code	Countermeasure	Cause	Caution Display During Error
C:32:☐☐	Turn the power off and on again.	Trouble with hardware.	SYSTEM ERROR
C:13:☐☐	Format the “Memory Stick” or internal memory.	“Memory Stick” or internal memory is unformatted.	FORMAT ERROR
	Insert a new “Memory Stick”.	“Memory Stick” is broken.	MEMORY STICK ERROR
	Turn the power off and on again.	Trouble with internal mamory.	INTERNAL MEMORY ERROR
E:61:☐☐	Checking of lens drive circuit.	When failed in the focus zoom initialization.	–
E:62:☐☐	Inspect angular velocity sensor peripheral circuits.	Steady shot function does not work well.	
E:91:☐☐	Checking of flash unit or replacement of flash unit. (Note)	Abnormality when flash is being charged.	
E:92:☐☐	Insert a batteries correctly.	Batteries are pack is not inserted correctly.	

Note: After repair, be sure to execute the “Initialize” of the setup screen.

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2005.05	Official Release	—	—
1.1	2005.11	Correction-1 (C1)	• Correction of the Before starting adjustment • Correction of the Table 6-1-1 • Correction of the Service tool S.M. correction: Page 6-1, Page 6-3, Page 6-4, Page 6-5	Yes
1.2	2007.07	Revised-1	• Change of Automatic Adjustmeut Program S.M. revised: Page 6-9	Yes
			Replace the previously issued SERVICE MANUAL 9-876-880-51 with this Manual. The changed portions from Ver.1.1 are shown in blue.	